AGRICULTURAL DEPARTMENT.

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Publishers Northe-All communications intended for this department should be addressed for J. P. Stelle, Fort Worth, Tex.

ALL ABOUT THE STRAWBERRY. Our correspondents desire an article on the strawberry and its culture, as shown last week Beginning that article, in compliance with their request, we would state that the strawberry belongs to the rose family in botany. Its generic name is Fragaria, from fragro (a sweet odor). There are several species in cultivation, but most, if not all, the varieties cultivated in this country are from the American species known to science as Fragaria virginiana.

The varieties under cultivation are numerous, some well adapted to certain regions of our country and some to others. There are few varieties well adapted to all regions of our country. The variety coming nearer to this characteristic than any other is the Wilson's Albany, perhaps. It is not regarded as an extremely high-class berry. but is passably good. This and another variety called the Neuman are the berries most extensively grown by the market gardeners and truck farmers of the South Dr. A. Oemler, an extensive Georgia twick farmer, treating on the requirements of a market strawberry, states to his excellent book, "Truck Farming for the

South," page 229, that they are: First, its adaptability to our climate second, productiveness. Third, fair-size Second, productiveness. Third, fair size, l'outh, sufficient firmness to enable it to endure the rough nandling and delay of transportation without injury, so that it may arrive in market in a good presentable appearance and condition. The old Wilson's Albany and the Neuman meet these condi-tions better than others. The latter is a more attractive and better flavored herry, is more productive of summers, and is runsmore productive of stummers, and is ran ily superseding the Wilson as the South

Our own experience with these two per ries. In Alabama, has shown them standing p little different from the way they are made to re-pear by Dr. Oemler. Like Dr. Comber, we have found them the best to writer berries that could be raised in the ponth, for both local and district trade, but with us the Wilson has always proved the has been the most proline, and capable of standing move rough usage than the other, I has not above up as quite so large

Having already referred to Dr. Oemler we may as well draw upon him further for the best Somborn methods of cultivating the strongers there could be no better Santhern authority. The strawberry, he says, wants a comparatively moist soil through its growing teason. The plant is year deep-gooted, its roots having beet teared to the depth of four feet. The straw Lerry always does best under irrigation no matter would the rain-fall may be. I reeds moisture regularity. Of course i will usually do fairly well without brighthan, but irrigation brings it up to its very heat. Surface watering by hand is impracticable where the crop is grown on a large scale; besides this character of watering noes not give full satisfaction. The soil should be made damp well down, though low-lying and naturally damp situation will not do to depend upon unless suscepti ble of deep drainage. We quote, page 242: A webstrained, deeply stirred, frinble, more or less chayes or learny soll, with plenty of segetable matter, will be more re-

testive of moisture, and more suitable than any other. If there be any choice of loca-tion, a morthern, once exposure is to be pre-A light, sandy soil, although it, will may harries, the picking season will be much shorter, and the entire crop stands a chance of being killed out the first summer [by arouth]. This summer killing is the chief

erawhick to strawberry culture in the ser, the henter the land the more necessit. that the manure should be thoroughly not ted, lest the plants grow to vine at the ex-pense of the lend. This is more likely to escar at the South then in a veoler climate and heavier amplications of manure are therefore most practicable at the North.

While large quantities of strong manure-are not nocessary on arready fortile clay sails, such soils cannot exceed to much de-cayed regetable matter.

Tie Clember then goes on to state that the lond for the stratulants pales must be deeply broken and thoroughly subverhed If manner is to be applied it should be is condensed after pleasing, and then worked into the soil by a second cross-playing. The first plowing should extend to a tearing up of the subsoil by following the turn plaw. In each furrow, with a bull-tongue or scooter. Finish up by cutting everything as fine as possible with some kind of still able harrow.

stray berry. One is known as the motted bed method another as the single row or drill method, and the third as the single hill method. The two methods first named are the methods must common at the North while the third method is the one almost universally resorted to in the South; it is therefore the method that we shall proceed to describe on the auticority of Dr. Oemler.

The land having been thoroughly ocepoved and left entirely level as to riuges, it is laid off in straight rows from three to three and a half feet apart. The strawberry growers about Mobile. Ala., by their rows four feet apart. The rows may be arranged with a garden line, or more expeditionsly by means of a wheel, upon the rim of which is fixed knobs or plus at certain regular dis tances. The impression of the city apor the soft soil marks the rows, while the linpressions of the pins show where to set the plants. The wheel is fixed between handles on the plan of a seed-drill or wheelbarrow, and has a standard in front from which the user can sight to stakes ahead to enable him to keep the row entirely straight. The plants are set from twelve to eighteen inches apart in the row, depending on soilclover on good soll, further on light soil.

Strong and well-rooted plants of the same senson's growth are to be set cut if the planting is a fall operation; if a spring operation they must be plants of the prereding summer's growth. Plants no older should ever be used. If the plants have long, straggling roots, these may be trimmed off-a pair of coarse shears may be used to do the trimming. But there must be no close trimming-only the long, straggling roots, or roots that have a dead appearance, are to be removed. Some persons employ a dibble or sharpened stick to open holes into which to set the plants, but, while it is a little more trouble, a garden trawel is the best implement to use. The libble prepares for crowding the roots together in a narrow hole while with the

trowel a hole may be opened large enough to admit of spreading out the roots of the plant, which is a thing highly advanta

If the plants have been shipped from a distance more or less dead leaves will be found upon them; these should be trimmed off. The roots will be more or less dry and therefore it would be best to "puddle hem before setting. "Puddling" meanhaving a pail of very soft mortar with the plants immersed into it up to the leaves, to be taken out as they are set in the ground If the plants are fresh from neighboring grounds no "puddling" will be necessary The soil should be firmly pressed around the plants when they are set, and care should be exercised not to leave them standing in a depression below the general level of the patch. Unless we employ some are in this matter, we are apt to settle the "hills" in our efforts to press the soil ground the roots of the plants.

Fall is the best time for putting out strawberry plants in the South, though in Texas they might be set out any time during the winter, and thence on to the last of April. But the fall planting does best. If put out in September or October they will be upt to yield a considerable crop of fruit next spring, but if set in the winter or spring there would be no fruit, of course for the next season, and the plants for the want of establishment would not be so wei prepared to withstand the effects of the next summer's drouths,

It is always best to use home-grown plants as nearly as possible, and by all means plants grown in the South. Plants shipped from the North never do so well for Southern culture as plants grown in the South, even though of the same variety-

they are not acclimated. Clean culture of the strawberry is of special importance. Unless the grower has fully made up his mind to accomplish clean culture he had best have nothing to do with strawberries. There must be no weeds or grass in the patch if one expects success with the crop. No crop we attempt to grow can be so rapidly run out by weeds and grass as can the strawberry. But the patch planted on the bill plan is not hard to keep clean. If a large patch a shallow-running cultivator will keep all foul growties ut, up to within an inch or two of the roy the hoe can be made to do the rest. If a small patch, the garden rake and hoe can do the work. It is always best to keep the surface mellow by shallow workings after each packing rain. There must be no deep vorking at any time

When the plants are beginning to bloom a straw mulch should be spread over the ground. This is to prevent the fruit from becoming splashed with soil in time of rains. Without such protection the ber ries would be quite aut to become seriously damaged. So soon as the fruiting season is over the mulch should be removed to admit of culture. In the pine regions "pine straw" is the mulch-material most commonly employed, though almost any kind of straw will answer the purpose-our prairie grasses cut and spread over the patch would make a first-rate mulch.

The best mulch for the plant (not the berry) is a mellowed surface of the soil, hence the recommendation that the froit protecting mulch be removed so soon as the fruiting season is over

After the fruiting season the plants will send out runners to form new plants, These must be promptly removed with a hoe or knife, for if left to themselves they will soon spoil the old plantation.

Or. Cemier does not pretend to state how ong a strawberry plantation in the South will remain profitable without renewal. Dr. White, in his "Gardening for the South," says, "The same plat of ground will remain productive many years." Of course much would depend upon the attenion paid the plantation. We think a strawberry plantation would hold good much longer on a clay soil well managed than on sandy soil. In the coast regions east of the Mississippi river, where the soil is very sandy, four years make up the time regarded as about the age of a plantation to prove entirely profitable. Over there, after the fourth crop has been gathered, the plants are allowed to throw out runners and establish plants for resetting in the fall. The young plants made by such runners are the plants that must be set for the new plantation-no other kind would an-

In case of a small plantation merely for home use, other and better varieties than either the Wilson's Albany or the Neuman might be cultivated, but we don't know which, if any, of these better varieties would succeed in Texas, and therefore shall not attempt any recommendation. The two varieties named would do well here, we are sure, and the family having plenty of ither will not be apt to much worry over a desire for something better. Of course we don't recommend these varieties exclusively; find out a better variety that will succeed, if you can, and plant it; but if you are in a hurry for strawberries it would be best, we think, to plant either the Wilson's Albany or the Neuman to fill the bill, as well as they can be made to do so, until those better and more fancy varieties have been decided upon.

In years back varieties bearing only pistillate flowers were more or less planted. The old "Hovey's seedling" was a variety of this character. To get fruit from such varieties it was necessary to plant with them certain varieties bearing male or staminate flowers. Varieties of this kind are now pretty generally discarded-all the popular varieties of to-day bear perfect flowers, and hence call for no separate settings of male plants.

HOG FEEDING MISTAKES. While the man who undertakes to raise and feed up a drove of hogs may make many mistakes, there are two mistakes of special prominence that are often made, according to the Indiana Farmer. Both are serious evils, constituting heavy barriers in the way of successful hog production. One of these is to feed on starvation rations, and the other is to over-feed with carbonaceous foods. One is as detrimental to the thrift and well-being of the hog as the the other. And the careful feeder will guard against either. Just enough and more is the proper guide. It requires

observation and judgment to become expert as a profitable feeder; these qualities ere of high value in the business, and he who exercises the most care and skill in providing food suitable to the requirements of his young hogs, will reap the best returns at the least cost, which means success of the highest order.

WILL IT PAY TO IRRIGATE.

Professor H. Reynolds, M. D., referred to by us in our Popular Science column of Plowman an article headed as above. The serious consideration, even in the so-called regions of regular rainfall. Water is an indispensable plant food required in large quantities. On this account it is well to make a study of whether or not it would pay to supply water to crops by artificial means, which is irrigation. In some coun tries no crops can be raised without irrigation, but where an abundant and regular supply of water can be furnished land of apparently very inferior quality is made to produce abundantly. Now the question arises, would it pay to supply water for irrigation in countries where the usual dependence is upon rain? It is seldom that a season passes that there is not some time during the season when there is scarcity of rain, and crops suffer for want of water. perhaps to the extent of diminishing the yield one-half. If a supply of water were available at such times, the crops could be generously irrigated and made to produce their usually abundant yield.

In this connection there are several facts worth considering. Water is absolutely indispensable in plant growth. An abundant supply of water is indispensable in the best development of crops.

Growing plants contain more of water than of all other components but together. The water amounts to from seventy to nmetvafive per cent of their make-up. Water is the vehicle through which plants receive their other elements of plant food. It is the solvent which dissolves the elements of fertility in the soil, and presents them to the growing crops for their use. The carefully conducted experiments of Mr J. B. Lawes of England showed that it wheat raising for every pound of dry mat ter produced two hundred pounds of water was evaporated, and that for every pound of mineral matter assimilated by the crop two thousand pounds of water passed through the plant. Leguminous plants, like beans and clover, require a much more abundant supply of water than wheat. To meet this demand of plants for water Mr. Lawes declares the usual supply of rain water is totally inadequate.

Experiments made by the Montsonri agicultural observatory in France fully confirm what Mr. Lawes has advanced. It was there found that for each pound of grain produced in the experiments, from 727 to 2692 pounds of water were evaporated by the plants. Taking the minimum quantity of water evaporated for each pound of grain produced, there would be required for a crop of thirty bushels of grain per acre a supply of water for evaporation through the plants alone sufficient to cover the field to a depth of four inches. Taking the average of the amount of water re quired for each pound of grain produced ascertained by experiments at the same place in 1873, a crop of wheat yielding forty bushels per acre would require an amount of water sufficient to cover the field to a depth of seventeen inches. Taking into consideration the large amount of water evaporated from the surface of the soil in addition to that required for the plants, it is evident that a large supply of water is needful to meet all the requirements of the growing crop. There facts will serve to show what large quantities of water are reouired by growing crops, and will also show how important that in case of drouth there should be some means of supplying artifici ally what is needed.

The advantages of irrigation, continues Dr. Reynolds, were well brought out by results obtained at Stoke Park in England, in 1871, when forty acres were arrigated so as to temper the soil when dry weather came in about the last of March, supplying moisture regularly and in sufficient quan tity to prevent the surface from crusting Two crops of hay, estimated at five ton per acre, were taken from this ground, and afterward in August, 120 Highland bullocks were turned in, averaging three bullocks to an acre. These remained till November receiving no food but the irrigated grasses and were kept in first-rate condition. On the other hand, 480 seres of land adjacent and of same quality, but not irrigated, be came so withered and bare from the sum mer drouth as to afford scarcely food for cattle or sheep. In 1883, on six acres of this same irrigated land 200 sheep were kept in hurdles in a fattening condition without other food than grass.

Instances have been reported where from sixty to eighty bushels of wheat have been obtained from an acre by irrigation. A Marlboro, Mass., farmer turned the water of a brook which flowed through a town of 8000 inhabitants, and served in part as a sewer, and used it in the irrigation of a thirty-acre field. The water was distributed by means of numerous ditches. During several years past an annual yield of about three tons of hay per acre and two cuttings, with the application of no other fertilizers, has been obtained, and the field continues to increase in productiveness The water is kept running upon some portion of the field nearly all the season, being changed frequently in its course by building and removing small dams.

This statement tempts us to break off and hint at the great loss some one is sustaining by not arranging to use the sewage of Fort Worth for irrigating and fertilizing purposes. The 'plan of our sewerage system certainly affor is a fine opportunity for saving an important waste. It passes below the city, through the bottom lands of the Trinity-a continuation of the pipes no very great distance beyond where the city ends them would bring the discharge to the surface upon an excellent body of bottom lands, making them a very mine of wealth to their owners.

Nearly every farm, says Dr. Reynolds, contains some pertion of land that would be benefited by irrigation. Some dry knoll, or sandy expanse, or light soil which seldom produces any paying crop unless the season is very wet, might by irrigation be made to yield well every year. In many cases there are springs or creeks that might be turned upon the lands where waters are needed and be used to great advantage. There are orchards that would be greatly benefited by irrigation. Whenever the soil began to suffer from drouth the water could be turned on, and give the land a good watering. The productiveness of the trees and the quality of fruit would be greatly im-

proved. The man who wishes to get a good ways ahead of his neighbors in the way of fine specimens of fruit, could do so by Judicious irrigation of his fruit trees. Where there is no other source of obtaining water, a good well with a wind-mill to pump the water affords a ready means of securing the needful supply for a small acreage. A reservoir connected with the wind-mill would serve to hold a supply of water for use whenever it was needed. There is little doubt that many farmers last week, now has in the Massachusetts | would find it advantageous to make provision for irrigating some portion of their question, he says, is one well worthy of lands, and that they would be well repaid for the expense. It is certainly a matter that should receive the careful attention of our farmers. The enterprising and progressive farmer desires to adopt all means that will promote his objects, and therefore he should consider the matter of irrigation

> It may be well for us to add that Dr Reynolds is applying his article mainly to the Northeastern states, a fact going to prove that an interest in irrigation is taking shape in all parts of our common country If irrigation would pay up there the ques tion as to whether or not it would pay in Texas is no longer left as an open question There they can raise but one crop in the season, on account of the short period lying between late spring frosts and early fall frosts. Here, under irrigation, we could raise three as full crops as their one crop could possibly be made up there, between our frost and frost. And this is not our only special advantage-we have soils that those New England people would be glad to ship 500 miles for application to their best lands as a fertilizer.

OUR CORRESPONDENTS.

This department is devoted to answerin on questions as may be asked by our sur-ribers, which may be of general information quiries of personal character that require as nquiries of personal character that require an acr by mail should a ways have stamp in losed. Please give full mame and postoffice address in adultion to any such signature as address in addition to any such signature as Subscriber, or "A. G. D." not for publication It against the will of the writer, but to admit of ct communication should such a thing is ned necessary. Address as directed at hea

ON CHEAP IRRIGATION. I have been at considerable pains and ex-pense to get accurate figures and facts re-

garding the possibility of irrigation it Southwest Texas. They show more re-markable possibilities of productiveness and wealth, as regards fruits, vegetables grains, etc., than California. This will be astonishing only because it is new. People have not had the facts set before them, and they are therefore astonished almost into incredulity at what actually exists in this wonderful section of the United States. It takes an average of nearly twenty-eight inches of rainfall per year, distributed at seasonable intervals, to make a crop in an agricultural country. I will put the rainfall at thirty inches and make sure of an abundance of moisture. Thirty inches of abundance of moisture. Thirty rainfall is \$4.628 gallons per acre. this \$4,628 gallons can be turned on the land just when needed most, and vice-versa, there could be no failure. If a sufficient supply of water is available, this can ready be done. In all Southwest Texas there san inexhaustible supply of water under No well has yet been bored that as failed to spout up from 300,000 to 3,750 olog gallons a day. I will take the medium wells—500,000 a day. This will give 182,500,000 gallons a year, or sufficient to thoroughly frigate 2147 acres of land. But since this water could be turned on and off at will, giving the ground just what was needed and no more, at the right time, it would do away with the surplus, usually amounting to one-third, and would thus easily irrigate at least 2500 acres of ground.

The cost of this style of irrigation is a marvel for cheapness. The irrigation dish companies usually charge \$3 per acre a year for water. This is every year. A well can be bored anywhere in this section for \$3.75 per foot for a six-inch well, everything furnished. As 1000 feet is the deepest you have to go to get from seven hundred thousand to two million gations a day in a six-inch well, the cost would not be over \$3750. Since the ditch irrigation would cost \$2 an acre every year, the well would be \$1850 less on 280 year, th acres the first year, and nothing after that I make no comparison of cost of conduits for distributing the water on your land, as the tiling would be the same in either system. But is the matter of elevation, the well system is superior to any other method, since these wells all have force sufficient to carry water up lifty feet or more. A com-mon well with a windaill pumping only 10,000 gallons a day—a small amount—will irrigate forty acres. Three-inch drain tile

ringate force acres. Three-inch drain the can be had, in small quantities, at \$20 a 1000 feet; for less in large quantities.

Will it pay? Ask Joe Tripis of Rockport. Capt. A. C. Jones of Beerille, J. Josey of Luling, T. B. Colman of Hallettsville, Wm. Armstrong and Mrs. Andrew Dulinig of San Antonio, and others, who make from \$100 to \$200 \$100 to \$800 an acre, mostly without irriga-tion. This soil and climate raises every-thing raised in California, and more and of better flavor and quality. Fortunes await those who will follow the suggestions in this article. WM. A. Bowns. this article. Sec'v San Antonio Commercial Exchange,

MORE ON PEANUT CULTURE.

Your article on peanut culture ought to e "worth its weight in gold," as we say, to the people of Texas. I am an old Virginia peanut raiser and, therefore, can youch for the correctness of your article in very particular.

Like all other crops, good seed is neces sary to successful peanut culture. The man who plants poor seed invariably makes a mistake. The white Virginia is a very popular variety, always commanding good prices on any market. It takes about thirty pounds of white Virginia to plant one acre. The Carolina red is a larger peanut than the white Virginia. It takes better on some markets on account of its larger size and will bear planting close together. I cannot explain why this last is the case, but it is an accepted fact. The vines do not spread quite so much as do those of the white Virginia. It takes about fifty pounds of the Carolina red to plant an acre. But the white Virginia heats it in yield every time and is, therefore, the nut that I would recommend for Texas. It is a nut of unfversal popularity, while the Carolina red is popular only on certain markets. Peanuts do best on a rich loam inclined to

sandy, as you state. A situation com-paratively dry is best for them. They will do well enough on land reasonably moist, but on a moist land the nuts ripen to more or less of a straw color, which is never a popular shade on the market. A hard and baking soil should never be

devoted to the peanut crop, as such a soil would be against the yield, to say nothing of the fact that the nuts are apt to be crooked and mis-shaped. A crooked and ill-shapen nut is never popular.

Peanuts should be cultivated about the

same as corn, not allowing weeds or grass to grow in the field, and keeping the sur-face of the land loose and mellow, especially when the spikes are forming. So soon as the flower stems start out there should be no further cultivation. Cultivation after this causes the nuts to blight or not fill out. As you state, the blossoms must never be As you state, the blossoms must hever be covered up. To think that peanut blossoms must be covered up is to think entirely erroneously. Leave them alone when they are ready for fruiting—the very least disturbance they can have, after that time, the

better it is for the crop.

Peanuts should be harvested so soon as most of the nuts are ripe. To leave them very late in the hope that the last nuts set will fill out and ripen is a mistake, as by while the course you lose more than you gain. When the earliest nuts are overripe the stem connecting them with the main vine dries up and loses strength to hold the nuts in handling, so you lose the early nuts if you wait too long; besides, those very late nuts are invariably too small to be of much nuts are invariably too small to be of much

make good hay, as you suggest, but no rain must be permitted to fall upon them. Leave the vines to cure well in the sun before housing, if there is no danger of rain. You need not be in a hurry about picking and sacking the nuts after the vines are unde shelter. Take your time about it, which will enable you to get your nuts sacked in better shape, and also to use cheap labor in

I am satisfied that Texas can raise pea nuts to the greatest perfection, and I am sure that some day our people will be earn-estly thanking the Fort Worth GAZETTE for starting the peanut boom in the Lone Star OLD GOOBER. Dallas, Texas.

We are ourself satisfied that the peanut can be made a grand success as a profitable crop for Texas. On several previous occasions we have stated as much. They say republics are ever ungrateful, and if this be so THE GAZETTE may never receive many thanks for its effort in the premises, but The GAZETTE is not overly particular about that kind of thing, anyway. The consciousness of having done a good work for Texas will be to our satisfaction without regard to who does or does not get credi

THE EL PASO GRAPE... I must take the liberty of stating that on more than pleased with your essays of various subjects, as appearing in the For Worth Gazerre, and I do hope they will not be allowed to stop in a newspaper Nothing like them has appeared before in Texas, and for Texas, and if THE GAZETTE r somebody else, would collect them to gether in book shape they would form a volume of agricultural and horticultural lit-erature whose usefulness to our state could not be estimated. Already I can think of essays enough to make a good-sized book, al plain and practical; as, for instance, you essays on pecan culture, on barley culture, on hop culture, on sugar beet culture, o sugar cane culture, on sweet potato cul ture, on navy bean culture, on peach cu ture, on peanut culture, on chufa culture on grape culture and on hosts of other sub Such a book would doubtless go of welli n Texas, and I hope the day is not fa

distant that shall find it upon the market. But, like your other correspondents, "took my pen in hand" to ask you for in In a late issue of THE GAZETTE you urged the people of Texas to look after the mustang grape, adding that good varie the mistain grape, adding that good vare-ties might be found and propagated, and that when found they would give us a grape which would be for all Texas what the El Paso grape is for El Paso. Can you throw any light on the origin of the famous El Paso grape! Is it a native of the El Paso region! Does it grow wild there! Please nswer through THE GAZETTE and much CONSTANT READER

Parker County, Tex. Thanks. The origin of the 'El Paso grape," as we call it in the cities and towns to which it is shipped from El Paso, is not a matter of record. It is simply the old "Mission grape" of California, and there fore El Pase has no right to have her name appended to it. In all regions west of El Paso it is known only as the "Mission grape." This name was given it on account of the fact that it was grown at the old Missions of the Pacific slope, but where or how the old Missions got it nobody now seems to know.

Will you kindly tell me through Tun Ga-zerre how to keep mustang grape wine for iome use without the employment of either sugar or alcoholt. If sugar must be used what is the least proportion of sugar that would keep it well? Please answer soon, as the grape season is almost over, and much Fort Worth, Texas.

Lack of information on our part as to the per cent of succharine matter contained in the juice of the mustang grape leaves your question a somewhat difficult one to answer. It may be possible that there is sugar enough in the mustang grape to cut off all need of adding sugar in wine-mak ing, though we rather incline to the opinion that there is not, considering the grapes in the wild state, as gathered from the woods Juice of the scuppernong grape requires one and a half pounds of good brown sugar to the gallon of wice, to make a first-class wine. Notice that we asay "brown sugar for the white sugars are not apt to be near so sweet as the brown sugars-most of them are more or less adulterated with glucose or grape sugar.

We think a pound and a half of sugar to the gallon of juice would be entirely safe for the mustang grape. Should this proportion of sugar be too high you would soon know it from the fact that the juice would not ferment. Having discovered this trouble, which would manifest itself within a week, you could apply a remedy in the addition of a little water.

No alcohol is needed if you use sugarthe office of the sugar is simply to make alcohol. Without this alcohol the julce, or "must," as wine-makers call it, would ferment too much and soon become vinegar. The sugar must be added at once, so soon as the fuice is pressed from the grape.

An unfermented wine is often made from various varieties of the grape. To make it place the grapes in a kettle of suitable size, and add just water enough to prevent then from scorehing when heat is applied. Boil fifteen or twenty minutes and then remove from the fire. All the grapes will be broken by the boiling process. So soon as cool enough to handle place in a strong cotton sack and squeeze out the juice. Strain the juice and put into common beer bottles when cool. Set the bottles in a vessel containing water at about their own temperature, and gradually bring up to the boil Now take out the bottles, one at a time and cork tightly as beer bottles are corked No wiring is necessary, but it might be well to cover the heads of the corks with sealing

This is unfarmented wine. Stored away in a cool place it will usually keep indefinitely. It makes a very nice and whole some drink, and while people call it "un fermented wine," it is really not wine at all, but simply canned grape juice.

We cannot vouch for how the mustang grape would serve the purpose of making unfermented wine. It would make the wine all right, no doubt, but there may exist a possibility that the peculiar acrid juice in the skins of the species would be brought out by the boiling, and would not prove good in point of either flavor or effect in the throat, when swallowed. You know, of course, that this juice of the skins pro duces a burning sensation in the throat if swallowed when one is eating the grapes We don't know that anything of the kind would attach to the unfermented wine peither do we know that it would not. Of course practical test would soon settle the

PLASTER OF PARIS

Please give us through THE GAZETTE the processes of burning gypsum to make plas-ter of Paris. State how it differs from burning a lime kiln. Let us know if it can be used for plastering tanks to hold water for stock, or for garden irrigation. I find it hard to make some tanks of earth that will hold water alove ground in this coll will hold water above ground in this soil.

The processes of burning gypsum to make plaster of paris do not differ materially from those of burning limestone to make lime. There is no chemical action in either case-the water is simply driven out by heat, and that is all there is of it. Why the article hardens afterwards, when mixed with water, comes of the fact that on receiving the water driven out by heat an effort at restoration to the original condition is made. The plaster burners of France where extensive works are carried on because of unusually pure gypsum existing there, have their kilns peater and better made than do our American lime burners but beyond this there is no particular difference. After the gypsum is calcined or burned it is finely ground in mills, and for the finer qualities passed through bolts like

Plaster of paris does not stand overly well in water, and therefore is not suitable for plastering water tanks. It is too porous for advantageous use as a water-holding cement. The best substance to employ in such cases is the hydraulic centent of Autonio manufacturing hydraulic cemen we think. Lurye quantities of it are made along the Tennessee river below. Florence,

Portland cement, now generally im ported (though there is a factory turning out a very good article at Fort Worth) makes a very fair water plaster, though we cannot look upon it as entirely so good as hydraulic cement for such purposes

Do you think the famous Bermuda onior raised on the Bermuda islands, and now of ommon on the early Northeastern markets could be made to succeed in this so portion of Texas! If so, please tell about it and how they cultivate it up in the Bermudas. I suppose it is unnecessary for me to offer an apology for intrusing upon your time and patience, since I se that everybody is after you for information, and that you are not kicking in the traces about it. Cameron county, Tex.

No kind of apology is due us-the mor

The Bermuda onion, so called gets th name from being extensively grown on the Bermuda islands and thence shipped to this country; but the name is a misnomer, far s really a French onion, known in the ountry as the Maderia. No onion seeds are raised on the Bermudas, and all the onions raised there are from seeds of the Maderia variety imported from the south of France (Osmier). So then, as you see the famous Bermuda onions are nothing more nor less than Bermuda-grown French Maderia onions

We are satisfied that the Maderia onlor (or Bermuda onion, if you prefer to call it by that name), would succeed to perfection n Southern Texas, and we are by no means sure that it would not succeed in all parts of the state, especially under imigation. It the southern part of the state the crop could doubtless be grown to put upon the market in full competition with the crops from Bermuda. We can see no kind of good rea son against this. Florida is making a suc cess of the variety, and certainly South Texas, with her decidedly better soil advantages, and with equal climatic advantages. could do more with it than Florida is doing It would be best to order seed direct from France, as the seed of the onion is of shor life. Seed more than one year old would

quarters he would stand a very fair chance of finding himself monkeying with unreli able seed. Fall would be your time for sowing the eed-say in November-but you might get good crops by sowing as late as January The soil best adapted to the crop is a deep rich, friable mould, full of vegetable may ter. The river and creek bottoms of Texas where naturally well drained, would sult the Maderia onion to the highest degree. House land deficient for decount etable matter, is not well adapted to the crop, as the bulbs would be comparatively small, and would have a more pungent or

be rather unreliable, and hence unless the

grower got his seed direct from head-

fiery taste. - (Oemier.) Although the onion is a shallow-rooted plant it requires that the land for it should be deeply broken and thoroughly pulverized. Sow on narrow lands ten or twelve feet wide, drilling the seed in rows tifteen inches apart. Roll lightly after sowing. In fair weather the plants ought to be up in about two weeks.

The thing indispensable for success with the onion is clean but shallow culture. Go over the ground often with rakes or other suitable implements, and keep the surface mellow. Never allow weeds or grass t start in the rows-pull them out by hand a soon as they appear. When the young plants are established thin down to about four inches apart in the row, if you desire large and fine bulbs-three inches apart would give a heavier yield but the bulbs would not be so large. - (Oemler). The plants taken out in thinning may, if the weather is favorable, be transplanted to other beds, where they will do aimost as well as those of the original sowing. The roots should be put down straight and the plants set a little deeper than they were growing before removal.

In harvesting, the onions are simply pulled by hand at ripeness, and left upon the ground a day or two to dry, after which they are gathered and the necks cut off with a sharp knife, when they are ready to pack for market.

THAT DEW POINT ONCE MORE.

Please accept my thanks for your clear and evidently correct answers to my ques-tions sent you last week, but there is still ne matter not entirely clear to my mind You have settled the question as to what a dew point is by your quotations from Pro-fessor E. M. Peudleton, M. D., but since all this talk has been about "the dew point, please state through The Gazette what de gree of earth temperature below that of the air can be regarded as "the dew point." I think this ought to settle the matter under agitation. Fort Worth, Texas.

This springs an entirely new question, but we are willing to go in with our folks on anything bounded by the pales of reason, so here goes:

The original question put to us was as to a high dew-point or a low dew-point averaging in Northern Texas. We gave it as our opinion, based upon the teachings of modern science, that the dew-point was high, compared to that of regions along the sea coast. Having no direct authority to what we could refer, we gave our reasons for the faith that was in us, and while others may not be satisfied with those reasons we must be permitted to state that for ourself we are entirely satisfied.

We have no acknowledged authorities to quote in answer to this new question of yours, and so far as we know there are none, so we must reason again on the teachings of modern science.

Dew is moisture condensed from the atmosphere by an earth surface colder than

A body, then, must be colder than the contiguous atmosphere before the dew be deposited upon it."- Pendieton | 11 much colder that body must be conlargely upon atmospheric condican be condensed only in case where mosphere is entirely autumated with time. If a fully saturated atmosphiover a surface but one degree temperature than that conlutaries atmosphere, there must swith the favorable, he a deposit or den not be a regular spider wen laa drabber, but it will be dew all even though a quantities so mearequire instrumental test for never ture of the atmosphere. If the ear

saturated with a square true tracted jute saturation by comput wi colder surface ere deiv can be de-We will suppose that the night are has temperature of all degrees. . that a temperature reduction of would be pecessery to eschaw it. saturation; the temperature of the surface would then have to slupe point below 55 negroes ere and dibe deposited. And even then " opesit might be extremely delieduction of air to saturation pilett lies end half a dozen inches above "lesse Thus, you seen that while there is scale of our thermometers a point," a "boiling point," and so on, can be no regular dew point, owing to way to get at the vdew point," a region as to high or low would be to pe age through a given time the earth teni at me bringing dew. If the averagea higher degree for North Texas the coast country then it alight b North Texas was, of the two red region of high dow points on moperiy, a region of higher as were paired to the coast region.

Without the knowledge of and a tests we have reasoned, that of the t gions named, North Texas most beof higher dew point on account of nimosphere at the roust necess. lower range of earth temperature to dew. Of course abound we reckours from the air temperature the Jewest de of variation might be found at the conto what regularly belonged to the refar as related to the average carrie temps ture necessary to give dear. The ... than would the same atmesphere aller had rolled inland to, say, Fort Worth. B fore reaching Fact. Worth it would ! lost more or less of its humidity, and of this account would be further from t earth dew-point, measured in degrees. the thermometer's scale, than when a me struck the land. But in would also be warmer, for it must be remembered that water can be made warm, as well as alcan be raised to the boiling point. suppose the air strikes the coast at a beperature of 65 degrees, and that

is so near saturation temperature four degrees would put it into that condition: the am earth temperature of 40 degrees leave a trace of dear mounthe hand. is to time it has rolled inland to Fort Worth has air has lost so much moisture, that a low temperature of cight degrees would be a essary to contract it into saturation; but at the same time its own temperature has seen lifted to 70 degrees. Beducth rate eight degrees we have our dow point at earth temperature of 61 degrees one of gree above the dew point on the costs. Of course this is theory, but it is o

tainly reasonable and the best that can or offered in the absence of a series of lactual The old other hygrometer marking a cer ular dew point has long sine gone to the

things that were, and the notion of such an idea as pointed out by that once popular out instrument lives now only in the minds of people who read old scientific literature as

POPULAR SCIENCE

SOME NEW THINGS BEING SEEN IN THE MOON.

A New Volcano-Maps and Names-dysterious Luminous Rays Great Discoveries Expected.

Astronomical photography has accorplished many very wonderful things, but among them all none are more wonderful and surprising than are brought to light by its recent work upon the moon. According to Prof. Titcomb, the moon is so near its comparatively speaking, and has been -> carefully studied with the most power? telescopes for hundreds of years, that the astronomers had come to think that beknew pretty much all about it, or, at least about that face of the moon which is turned toward the earth. But it turns outland photography possesses the power to reveathings upon the moon which cannot be and by the eye, even with the aid of the beat telescopes. A careful study of the negatives of the moon, made with the sid of the great Lick telescope, has revealed the existence of many unknown objects there, he cluding great crater mountains and rifts or chasms in the surface of the moon, as well as some of those mysterious objects that go under the descriptive name of bright streaks or rays.

For the benefit of our young readers, we may state that astronomers have actually mapped the moon out, as a country would be mapped, and have given names to its ranges of mountains, mountain peaks, volcanoes, valleys and plains, as seen through their great telescopes. It is interesting to be among them at some great observatory and hear them talk about things on the moon. They make use of the names given and speak of localities exactly as one would speak of the various localities in North America, never mentioning the moon is connection with what they are saying. But to this new work of photography.

Near the great volcanic crater which astronomers call Copernicus another crater of nearly equal dimensions is shown upon the negatives, although it is absent from the most elaborate maps of the moon, and conthat maintained by the said atmosphere. | not be seen even with the Lick telescope